IN THE DRAWINGS

The attached sheet of drawings includes Figure 7C. The attached sheet, which includes the erroneously omitted Figure 7C in accordance with the disclosure found in the paragraphs 107-110 on pages 38-39 of the present parent application, corrects the erroneous omission. No new matter has been added.

Attachment: Replacement sheet

REMARKS

The foregoing amendment is to impart greater clarity to the claims rather than to avoid prior art.

Applicants respectfully request reconsideration of this application as amended. Claims 1-31 are pending in the application. Claims 1-31 are rejected. Claim 1 is amended.

The Office Action rejects Claims 1-31 for nonstatutory obviousness type double patenting over U.S. Patent Nos. 5,859,997, 5,983,256 and 6,385,634. Applicant respectfully disagrees that all claims in the present application are obvious in view of the instant patented claims. Never the less, a terminal disclaimer with regard to the above referenced patents is attached herewith as a separate paper.

Rejections under 35 U.S.C. 101

Claims 1-13 are rejected under 35 U.S.C. 101, as allegedly being directed to non-statutory subject matter. Applicant respectfully disagrees.

Claim 1, for example, sets forth:

1. (Currently Amended) A method comprising:

receiving a first instruction, the first instruction of an instruction format comprising a first field to indicate a first operand having a first plurality of data elements including at least A1, A2, A3, and A4 as data elements, and a second field to indicate a second operand having a second plurality of data elements including at least B1, B2, B3, and B4 as data elements, each of the data elements of the first and second pluralities of data elements having a length of N bits; and

storing, in an architecturally visible destination operand, a packed data having a length of at least 4N bits in response to said first instruction, by performing the operation (A1 x B1) + (A2 x B2) to generate a first data element of the packed data, and performing the operation (A3 x B3) + (A4 x B4) to generate a second data element of the packed data, each of the first and second data elements having a length of at least 2N bits.

An analysis of the instant claims must be performed in order to make a determination of whether the subject matter is statutory. Such analysis should correlate each claim element with corresponding structures, materials or acts set forth in the specification.

The Federal Circuit makes it clear that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. "The person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Phillips v. AWH Corp.*, 415 F.3d at 1313.

Applicant respectfully submits that the claimed computation in response to an instruction, of an architecturally visible destination operand as a packed data by performing the operations (A1 x B1) + (A2 x B2) and (A3 x B3) + (A4 x B4) to generate first and second data elements of the packed data, as set forth in claim 1, would not be treated merely as a program per se by a person of skill in the art in the context of the entire patent.

The instant language when correlated with the corresponding structures and processes set forth in the specification makes it apparent to one of skill in the art that the claimed invention has a practical application in the technical arts, i.e. to improve the performance of a number of algorithms that require the multiplication of complex numbers, that require transforms, and that require multiply accumulate operations. Thus, such practical application in the technical arts include but are not limited to motion video compression/decompression, image filtering, audio signal compression, filtering or synthesis, modulation/demodulation, etc.

In addition, Applicant respectfully submits, that the present application clearly asserts such a practical application in the technical arts.

For example, paragraph 37 of the specification (emphasis added) asserts that:

The code 195 can be written to cause the processor 109 to perform transformations, filters or convolutions with the multiply-add/subtract instruction(s) for any number of purposes (e.g., motion video compression/decompression, image filtering, audio signal compression, filtering or synthesis, modulation/demodulation, etc.).

Paragraph 136 of the specification (emphasis added) asserts that:

In contrast, the disclosed multiply-add/subtract instructions do not carry forward an accumulation value. As a result, these instructions are easier to use in a wider variety of algorithms. In addition, software pipelining can be used to achieve comparable throughput. To illustrate the versatility of the multiply-add instruction, several example multimedia algorithms are described below.

Paragraph 137 of the specification (emphasis added) asserts that:

The disclosed multiply-add instruction can be used to multiply two complex numbers in a single instruction as shown in Table 6a.

Paragraph 140 of the specification asserts that:

The disclosed multiply-add instructions can also be used to multiply and accumulate values. For example, two sets of four data elements (A_{1-4} and B_{1-4}) may be multiplied and accumulated as shown below in Table 7.

Paragraph 144 of the specification (emphasis added) asserts that:

Dot product (also termed as inner product) is used in signal processing and matrix operations. For example, dot product is used when computing the product of matrices, digital filtering operations (such as FIR and IIR filtering), and computing correlation sequences. Since many speech compression algorithms (e.g., GSM, G.728, CELP, and VSELP) and Hi-Fi compression algorithms (e.g., MPEG and subband coding) make extensive use of digital filtering and correlation computations, increasing the performance of dot product increases the performance of these algorithms.

Paragraph 144 of the specification (emphasis added) asserts that:

The dot product calculation can be performed using the multiply-add instruction. For example if the packed data type containing four sixteen-bit elements is used, the dot product calculation may be performed on two sequences each containing four values by:

1) accessing the four sixteen-bit values from the *A* sequence to generate Source1 using a move instruction;

2) accessing four sixteen-bit values from the *B* sequence to generate Source2 using a move instruction; and

3) performing multiplying and accumulating as previously described using a multiply-add, packed add, and shift instructions.

Paragraph 149 of the specification (emphasis added) asserts that:

Discrete Cosine Transform (DCT) is a well known function used in many signal processing algorithms. Video and image compression algorithms, in particular, make extensive use of this transform.

In image and video compression algorithms, DCT is used to transform a block of pixels from the spatial representation to the frequency representation. In the frequency representation, the picture information is divided into frequency components, some of which are more important than others. The compression algorithm selectively quantizes or discards the frequency components that do not adversely affect the reconstructed picture contents. In this manner, compression is achieved.

Paragraph 152 of the specification (emphasis added) asserts that:

The multiply-add allows the DCT calculation to be performed using packed data in the following manner:

1) accessing the two 16-bit values representing x and y to generate Source1 (see Table 11 below) using the move and unpack instructions;

2) generating Source2 as shown in Table 11 below -- Note that Source2 may be reused over a number of butterfly operations; and

3) performing a multiply-add instruction using Source1 and Source2 to generate the Result (see Table 11 below).

Paragraph 155 of the specification (emphasis added) asserts that:

In this manner, the described multiply-add instruction can be used to improve the performance of a number of different algorithms, including algorithms that require the multiplication of complex numbers, algorithms that require transforms, and algorithms that require multiply accumulate operations. As a result, this multiply-add instruction can be used in a general purpose processor to improve the performance of a greater number algorithms than the described prior art instructions.

Thus the specification makes it readily apparent to one of skill in the art that the claimed invention has a practical application in the technical arts.

The Supreme Court held that the focus in any statutory subject matter analysis be on the claim as a whole, stating "When a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing, then the claim satisfies the requirements of § 101." *In re Alappat*, 33 F.3d 1526, 1543 (Fed. Cir. 1994) (quoting *Diehr*, 450 U.S. at 192, 209 USPQ at 10).

This notion is sometimes phrased in terms of requiring a transformation or reduction of 'subject matter.' In Schrader, the phrase 'subject matter' was determined not to be limited to tangible articles or objects, but includes intangible subject matter, such as data or signals, representative of or constituting physical activity or objects. *Schrader*, 22 F.3d at 295, 30 USPQ2D (BNA) at 1459.

Thus Applicant respectfully submits that Claims 1-13 are directed to statutory subject matter.

CONCLUSION

Applicants respectfully submit the amended specification, the amended drawings, and the present claims for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Lawrence Mennemeier at (408) 765-2194.

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

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Attachments: